I claim:

1. A method of plating a conductive top surface of a workpiece, the conductive top surface of the workpiece including a top portion and a cavity portion, the method comprising:

applying, over the conductive top surface of the workpiece, an electrolyte solution with at least one additive disposed therein, a first portion of the additive becoming adsorbed on the top portion and a second portion of the additive becoming adsorbed on the cavity portion;

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using a workpiece-surface-influencing device to make physical contact with the top portion and establishing relative movement with the workpiece to change at least the first portion of the additive absorbed onto the top portion

moving the workpiece-surface-influencing device away from the workpiece surface so that the physical contact between the workpiece-surface-influencing device and the workpiece no longer occurs; and

plating the conductive top surface of the workpiece with a conductor obtained from the electrolyte solution at least during a period of time when at least some of the change is maintained and while the workpiece-surface-influencing device remains moved away from the workpiece surface, thereby causing greater plating of the cavity portion relative to the top portion.

2. The method according to claim 1 further including further plating the conductive top surface of the workpiece before and during the steps of using and moving.

3. The method according to claim 2 wherein the step of applying the workpiece-surface-influencing device applies a mask that includes at least one opening therein through which a flow of electrolyte therethrough can be controlled.

4. The method according to claim 3 wherein the step of moving the mask away is performed by increasing a pressure of the electrolyte on the mask.

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5. The method according to claim 2 wherein the at least one additive includes a plurality of additives, comprising both a suppressor and an accelerator.

6. The method according to claim 5 wherein the plurality of additives includes Cl.

7. The method according to claim 5 wherein, during the step of plating, more effective accelerating additive exists on the cavity portion than on the top portion.

8. The method according to claim 7 wherein the step of using the workpiece-surface-influencing device creates the change by at least one of removing accelerator species, activating suppressor species, and increasing suppressor species on the top portion. .

9. The method according to claim 8 wherein the steps of , using the workpiece-surface-influencing device, removing the workpiece-surface-influencing device, and plating are repeated.

10. The method according to claim 2 wherein the steps of using the workpiece-surface-influencing device, removing the workpiece-surface-influencing device, and plating are repeated.

11. The method according to claim 2, wherein the step of plating continues without further contact being established between the workpiece-surface-influencing device and the workpiece surface to result in an overfill of the conductor being plated over the cavity portion relative to the top portion of the workpiece surface.

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12. The method according to claim 2 wherein the conductive top surface includes a plurality of cavity portions, and the step of plating plates a conductive layer over the conductive top surface, such that the conductive layer is formed within each of the plurality of cavities, is formed over a flat top surface portion of the conductive top surface with a substantially planar thickness, and is formed over at least one of the plurality of cavity portions with a thickness that is greater than the substantially planar thickness to create an overfill thereover.

13. The method according to claim 12 wherein the one cavity portion is larger than a plurality of other cavity portions, and the plurality of other cavity portions have formed thereover the thickness of the conductive layer that is greater than the substantially planar thickness to create at least one another overfill thereover, and the one cavity portion has formed thereover the thickness of the conductive layer that is greater than the

substantially planar thickness to create the overfill.

14. The method according to claim 2 further including the steps, after the step of plating, of:

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re-using the workpiece-surface-influencing device to make physical contact with the top portion and establishing relative movement with the workpiece to obtain another change in at least the first portion of the additive absorbed onto the top portion;

again moving the workpiece-surface-influencing device away from the workpiece so that the physical contact between the workpiece surface influencing device and the workpiece no longer occurs; and

again plating the conductive top surface of the workpiece with the conductor obtained from the electrolyte solution during another period of time when at least some of the another change is maintained.

15. The method according to claim 14 wherein the conductive top surface includes a plurality of cavity portions and one cavity portion is larger than a plurality of other cavity portions, and the step of again plating plates a conductive layer over the conductive top surface, such that the conductive layer is formed within each of the plurality of cavities, is formed over a flat top surface portion of the conductive top surface with a substantially planar thickness, is formed over the plurality of other cavity portions with a substantially planar thickness and is formed over at least the one cavity portion with a thickness that is greater than the substantially planar thickness to create an overfill thereover.

16. The method according to claim 1 wherein the step of plating includes the step of providing at least one of DC, AC and pulsed power during plating.

17. The method according to claim 16 wherein the step of providing provides DC power and operates, at least part of the time in a current controlled mode in which a plating current is substantially controlled.

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18. The method according to claim 16 wherein the step of providing provides DC power and operates, at least part of the time in a voltage controlled mode in which a plating voltage is substantially controlled.

19. The method according to claim 1 wherein the step of plating plates one of copper and a copper alloy.

20. The method according to claim 1 wherein power used for plating is not applied during the steps of using and moving. .

21. The method according to claim 1 wherein the step of using the workpiece-surface-influencing device causes a differential in a surface resistance between the top portion and the cavity portion.

22. The method according to claim 1 further including the step of adding another additive to the electrolyte that assists in loosening a bond between the additive and the

surface of the workpiece.

23. The method according to claim 1 wherein the step of using the workpiece-surface-influencing device uses a sweeper that has a sweeping portion that physically contacts the workpiece with a surface area that is substantially less than the surface area of the workpiece surface.

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24. The method according to claim 23 wherein the at least one additive includes a plurality of additives, comprising both asuppressor and an accelerator.

25. The method according to claim 24 wherein, during the step of plating, more effective accelerating additive exists on the cavity portion than on the top portion.

26. The method according to claim 25 wherein the step of using the workpiece-surface-influencing device creates the change by one of removing accelerator species and activating suppressor species on the top portion. .

27. The method according to claim 25 wherein the steps of using the workpiece-surface-influencing device, removing the workpiece-surface-influencing device, and plating are repeated.

28. The method according to claim 23 wherein the step of using the workpiece-surface-influencing device ensures that the relative movement causes the change over an

entire surface area of the workpiece to be plated.

29. The method according to claim 1 wherein the at least one additive includes a plurality of additives, comprising both a suppressor and an accelerator.

30. The method according to claim 29 wherein the plurality of additives includes Cl.

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31. The method according to claim 29 wherein, during the step of plating, more effective accelerating additive exists on the cavity portion than on the top portion.

32. The method according to claim 31 wherein the step of using the workpiece-surface-influencing device creates the change by at least one of removing accelerator species, activating suppressor species, and increasing suppressor species on the top portion. .

33. The method according to claim 32 wherein the steps of , using the workpiece-surface-influencing device, removing the workpiece-surface-influencing device, and plating are repeated.

34. An apparatus for plating a conductive top surface of a workpiece using an electrolyte, the conductive top surface of the workpiece including a top portion and a

cavity portion, and having at least one additive adsorbed thereon, the apparatus comprising:

an anode to which power can be applied, thereby creating an electric field between the anode and the top surface of the workpiece and allowing plating of the top surface to occur; and

a workpiece-surface-influencing device adapted to physically contact the top portion of the workpiece surface and allow relative movement to occur between the workpiece-surface-influencing device and the workpiece to change an amount of the first portion of the additive adsorbed on the top portion, the workpiece-surface-influencing device further adapted to be removed from physical contact with the top portion and plating to occur during a period of time when at least some of the change is maintained, thereby allowing for the amount of conductor plated onto the top portion of the workpiece to be less than the amount of conductor plated on the cavity portion of the workpiece.

35. The apparatus according to claim 34 wherein the workpiece-surface-influencing device is a sweeper that has a sweeping portion that contacts the workpiece and has a surface area that is substantially less than the surface area of the workpiece surface.

36. The apparatus according to claim 35 wherein the surface area of the sweeping portion is less than 20% of the surface area of the workpiece surface.

37. The apparatus according to claim 35 wherein the surface area of the sweeping portion is less than 10% of the surface area of the workpiece surface.

38. The apparatus according to claim 35 wherein the sweeper is connected to a handle that moves the sweeper.

39. The apparatus according to claim 38 wherein the handle is under programmable control that removes the sweeper from contact with the workpiece surface.

40. The apparatus according to claim 38 wherein the handle is retractable and is adapted to remove the sweeper from being over the workpiece surface.

41. The apparatus according to claim 37 wherein the sweeper is adapted to ensure that the relative movement reduces the amount of the first portion of the additive from an entire surface area of the workpiece to be plated.

42. The apparatus according to claim 41 wherein the sweeper is adapted to move across the workpiece surface while the workpiece rotates.

43. The apparatus according to claim 42 wherein a speed that the sweeper moves is greater in a center portion of the workpiece surface than an edge portion of the workpiece surface.

44. The apparatus according to claim 35 wherein the sweeper is circular and rotates around a central axis.

45. The apparatus according to claim 35 wherein the sweeper has a shape of a bar.

46. The apparatus according to claim 35 wherein the sweeper includes a rotating belt.

47. The apparatus according to claim 42 wherein the workpiece-surface-influencing device is a mask that includes at least one opening therein through which a flow of the electrolyte therethrough can be controlled.

48. An apparatus according to claim 47 wherein the mask and the workpiece both independently move.

49. A portion of a semiconductor structure comprising:

a plurality of cavity portions disposed within an insulator layer having a flat top surface;

a conductive layer formed within each of the plurality of cavity portions, formed over the flat top surface of the insulating layer with a substantially planar thickness, and formed over at least one of the plurality of cavity portions with a thickness that is greater than the substantially planar thickness to create overfill thereover.

50. A structure according to claim 49 wherein one cavity portion is larger than a plurality of other cavity portions, and the plurality of other cavity portions have the substantially planar thickness formed thereover, and the one cavity portion has the thickness that is

greater than the substantially planar thickness formed thereover to create the overfill.

51. A structure according to claim 49 wherein one cavity portion is larger than a plurality of other cavity portions, and the plurality of other cavity portions have formed thereover the thickness of the conductive layer that is greater than the substantially planar thickness to create at least one another overfill thereover, and the one cavity portion has formed thereover the thickness of the conductive layer that is greater than the substantially planar thickness to create the overfill.

52. A method of making a plating apparatus that plates a conductor on a top surface and a cavity surface of a workpiece using an electrolyte with at least one additive disposed so that a change in at least a portion of the additive absorbed onto the top portion can exist when plating comprising the steps of:

providing a conductor plating apparatus containing an anode, a workpiece holder, and a power source electrically coupled to the anode and adapted to be electrically coupled to the workpiece, the conductor plating apparatus adapted to plate the conductor on the top surface and the cavity surface of the workpiece when the electrolyte is disposed on the top surface of the workpiece; and

adding to the conductor plating apparatus a workpiece-surface-influencing device having a sweeping surface that is adapted to contact the top surface of the workpiece and assist in creating the change, a surface area of the sweeping surface that is adapted to contact the top surface of the workpiece being substantially less than the surface area of the top surface of the workpiece.

53. The method according to claim 52 wherein the step of adding adds as the workpiece-surface-influencing device a mask that includes at least one opening therein through which a flow of electrolyte can be controlled.

54. The method according to claim 53 wherein the mask and the workpiece both independently move.

55. The method according to claim 52 wherein the step of adding adds as the workpiece-surface-influencing device a sweeper that has the sweeping surface that contacts the workpiece.

56. The method according to claim 55 further including the step of adding a shaping plate between the anode and the workpiece holder, the shaping plate being separate from the sweeper.

57. The method according to claim 55 wherein the sweeper is adapted to ensure that an entire portion of the workpiece to be plated is contacted to create the change over the entire portion of the workpiece to be plated.

58. The method according to claim 55 wherein the surface area of the sweeping surface is flat and less than 20% of the surface area of the workpiece surface.

59. The method according to claim 55 wherein the surface area of the sweeping surface is flat and less than 10% of the surface area of the workpiece surface.

60. The method according to claim 55 wherein the sweeper is connected to a handle that moves the sweeper.

61. The method according to claim 60 wherein the handle is under programmable control that removes the sweeping surface from contact with the workpiece surface.

62. The method according to claim 61 wherein the handle is retractable and is adapted to remove the sweeper from being over the workpiece surface.

63. The method according to claim 55 wherein the sweeper is adapted to move across the workpiece surface while the workpiece rotates.

64. The method according to claim 63 wherein a speed that the sweeper moves is greater in a center portion of the workpiece surface than an edge portion of the workpiece surface.

65. A method of plating a conductive top surface of a workpiece, the conductive top surface of the workpiece including a top portion and a cavity portion, the method comprising the steps of:

applying, over the conductive top surface of the workpiece, an electrolyte solution

with at least one additive disposed therein, a first portion of the additive becoming adsorbed on the top portion and a second portion of the additive becoming adsorbed on the cavity portion;

using a workpiece-surface-influencing device having a flatsweeping surface that has a surface area that is substantially less than the surface area of the top surface of the workpiece to make physical contact with the top portion and establishing relative movement with the workpiece to change at least the first portion of the additive absorbed onto the top portion; and

plating the conductive top surface of the workpiece with a conductor obtained from the electrolyte solution at least during a period of time that some of the change is maintained, thereby causing greater plating of the cavity portion relative to the top portion.

66. The method according to claim 65 wherein the step of using the workpiece-surface-influencing device includes the step of moving the workpiece-surface-influencing device with a handle connected thereto.

67. The method according to claim 65 wherein the step of using the workpiece-surface-influencing device includes making physical contact with an entire top portion area of the workpiece to be plated to create the change over the entire top portion area of the workpiece to be plated.

68. The method according to claim 65 wherein the step of applying the workpiece-

surface-influencing device includes the step of moving the workpiece-surface-influencing device across the workpiece surface while the workpiece rotates.

69. The method according to claim 68 wherein during the step of moving, a speed that the workpiece-surface-influencing device moves is greater in a center portion of the workpiece surface than an edge portion of the workpiece surface.

70. The method according to claim 65 further including the step of moving the flat sweeping surface away from the top portion of the workpiece to prevent physical contact therebetween.

71. The method according to claim 70 further including the step of retracting the workpiece-surface-influencing device from being over the workpiece surface.

72. A method of leveling a plurality of overfills that exist on a conductive layer of a workpiece, with trough regions therebetween, comprising the steps of:

providing an electrolyte solution with at least one additive disposed therein such that a first portion of the additive is adsorbed on the plurality of overfills and a second portion of the additive is adsorbed on the trough regions therebetween;.

using a workpiece-surface-influencing device to make physical contact with the plurality of overfills and establishing relative movement with the conductive layer of the workpiece to change at least the first portion of additive adsorbed onto the plurality of overfills; and

plating the conductive top surface of the workpiece with a conductor obtained from the electrolyte solution at least during a period of time that at least some of the change is maintained, thereby causing greater plating of the trough regions relative to the plurality of overfills, and thereby leveling the conductive layer.